

FEASIBILITY STUDY



Prepared by the
Delaware Department of Transportation

In association with
Sussex County, Delaware

WHITMAN, REQUARDT AND ASSOCIATES, LLP
WILMINGTON, DELAWARE

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INTRODUCTION

Background

In December 2000, Senator George H. Bunting, Jr. sponsored Senate Resolution No. 20, calling upon the Delaware Department of Transportation to undertake a study to determine the feasibility of a new north-south limited-access highway in Sussex County, Delaware. This resolution received strong support from Sussex County Administrator Robert L. Stickels, the Sussex County Council, and representatives of numerous County municipalities.

Nathan Hayward III, Delaware's Secretary of Transportation, instructed the Department of Transportation's Director of Planning and Policy, Ralph A. Reeb, to work with Sussex County staff in the conduct of a feasibility study. The firm of Whitman, Requardt and Associates, LLP was engaged to perform the work, and the study was started in March 2001.

Purpose of the Study

Sussex County is fortunate in having three major north-south routes: SR 1, US 13, and US 113. With the relatively recent dualization of US 113 from Milford to Georgetown, all of these routes are minimally four-lane divided arterial roadways. However, none of these routes in their entirety are limited access facilities.

According to S.R. 20, there are a number of factors that have led to the need to study north-south travel in Sussex County. The imminent completion of the 45-mile SR 1 corridor between northern New Castle County and Dover Air Force Base in 2003 is likely to increase north-south traffic throughout Delaware. At the same time, the communities along the County's current north-south routes are developing, and a substantial portion of new commercial development is naturally located along those routes.

There are three major types of traffic using Sussex County's roads today. Local traffic is the largest consistent traffic generator. Nearly all County businesses, including agribusiness and manufacturing enterprises, are truck-based and rely on roads for deliveries of raw materials and movement of finished goods to market. Interstate truck and auto traffic traveling through the Delmarva Peninsula is also a significant contributor to traffic volume. As congestion in the Richmond, Washington, D.C., and Baltimore areas continues to worsen, the Delmarva Peninsula becomes more attractive for regional through traffic.

Finally, seasonal traffic from northern Delaware, Maryland, Virginia, and Pennsylvania uses Sussex County roads to travel to the beaches between Rehoboth Beach, Delaware and Ocean City, Maryland. In recent years, the beach traffic season has grown in length and intensity.

All of these categories of users have distinct and, in some cases, conflicting operational requirements. For example, local users who primarily use passenger cars and light trucks prefer full access to all the abutting properties with relatively simple and safe traffic operations. Statewide and regional users, truckers, vacationers, and long distance commuters, on the other hand, desire high-speed traffic operations with minimum interruptions.

Thus, any upgraded or new north-south facility must provide for local and regional traffic, as well as absorbing the influx of summer beach-oriented traffic to Sussex County. In doing this, the facility will free up capacity on other parts of the existing road system.

It was the purpose of this study to evaluate the feasibility of options to address north-south travel in Sussex County and recommend a path forward to assure adequate north-south capacity on Sussex County roads for the foreseeable future.

Corridor Preservation Efforts

DelDOT has initiated a Corridor Capacity Preservation Program to preserve the ability of through roadways to maintain their traffic-carrying capacity in the future. This program is particularly beneficial in southern Delaware, where arterial roadway frontages are not fully developed and opportunities still exist to manage access in a beneficial way.

To date, the Department has developed a program for the SR 1 corridor from Dover Air Force Base to Nassau to convert that corridor, over time, to limited access. This will be accomplished primarily along the existing alignment, with frontage roads provided to accommodate existing land uses and overpasses or interchanges to accommodate side roads. Where no other alternatives are feasible, access rights or properties will be purchased. This plan was completed in October 1998.

DelDOT is currently working on a plan for the US 13 corridor from Camden in Kent County to the

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Maryland border at Delmar in Sussex County. The emphasis of this plan is not on converting US 13 to limited access but, rather, in recognition of the growth that has occurred in this corridor over the last several years and the needs of the communities along the corridor, to support continued economic development. The plan uses techniques such as the development of frontage roads to provide access and improved signal timing and coordination to maintain roadway capacity. Having gained a broad base of support from the towns along the route, this plan is scheduled to be completed in late 2001.

Prior to initiation of this feasibility study, preparation of a corridor preservation plan for US 113 between Milford and the Maryland state line at Selbyville was scheduled to begin in 2001. That schedule and the scope of the corridor preservation effort may change upon publication of this report.

Corridor preservation efforts in and around Sussex County have not been limited to Delaware. Discussion with Maryland State Highway Administration officials indicates that Maryland is committed to the reconstruction of US 113 into a limited-access arterial

roadway between Delaware and Virginia. Planning for the proposed modification to US 113 is complete and construction from Route 50 to Showell is nearing completion. Completion of the dualization of US 113 between MD 90 and Delaware state line is expected in 2003. With the exception of the completion of the Salisbury bypass from US 13 to US 50, Maryland has no similar plans to convert US 13 to a limited-access facility.



Limited-access US 113 near Maryland Route 90.

CORRIDOR ANALYSIS

Base Information

A base map of Sussex County was developed to aid in planning efforts. This map included existing roadways and developed areas. The key natural resources identified included streams and ponds, wetlands, state parks and forests, and cemeteries. Because of the nature of the study, mapping of historic and archaeological resources, available at a County-wide scale, was not used. This information must be compiled when more specific options are studied further. To complete the mapping for this study, areas identified by the County and by the Office of State Planning Coordination for anticipated growth were also shown.

DelDOT provided cost data for potential improvement alternatives. The SR 1 project in New Castle and Kent Counties was used as a baseline for a limited-access highway on new alignment. Construction of this roadway began in 1989 and is projected for completion in 2003. Excluding the Chesapeake and Delaware Canal Bridge, which cost \$58 million, SR 1 cost over \$15 million per mile. This figure includes construction, right of way, engineering, construction inspection, and environmental work. The working group agreed that, as a basis for comparison in today's dollars, a cost of \$16 million per mile should be used for projects on new alignment.

Upgrades along existing alignment in southern Delaware are likely to be somewhat less expensive. DelDOT indicated that a typical segment of the SR 1 corridor capacity preservation program, with similar roadway conditions and adjacent land uses to those found in Sussex County, is estimated to cost about \$9 million per mile.

Study Area

Unlike that portion of the Delmarva Peninsula north of Dover, which had only one main north-south highway prior to the construction of SR 1, Sussex County has the advantage of having three north-south corridors: SR 1, US 13, and US 113. However, none of these routes is a limited-access facility. As noted above, DelDOT has developed a program for the SR 1 corridor from Dover to Nassau to convert that corridor, over time, to limited access. Although improvements are necessary for SR 1 to carry seasonal and local traffic from Nassau south, it is not feasible to develop a new limited access highway along this corridor because of dense development and environmental constraints. A new highway through the center of Sussex County might benefit through traffic, but it could negatively impact existing roadside businesses and promote growth in productive agricultural areas. Therefore, the working group concentrated on the US 13 and US 113 corridors for this study.

Initial Corridors Considered

At the beginning of the study process, the working group established a key parameter for the evaluation of potential corridors. For several reasons, including economic constraints and timing, the consideration of options had to recognize the need for the Department to develop a facility in usable, affordable sections. Because of the many competing demands on the State's financial capabilities, options that must be constructed in their entirety or in large sections in order to be functional are less desirable than options that can be built in smaller, less expensive, usable pieces. This also has the advantage of providing relief in a more timely fashion.

Figure 1 depicts the various corridors developed through discussions with the project working group. A "brainstorming" session was conducted with the group to put all conceivable corridors on the base map. Those corridors were then evaluated based on the context established for the proposed north-south facility. As seen in the figure, corridors ranged across the county and included the conversion of existing US 13 to a limited access facility and a new corridor paralleling US 13. Also shown are the conversion of existing US 113 to limited access and new corridors paralleling US 113 both east and west of US 113 from north of Georgetown to Selbyville. Western and southern bypasses of Milford, tying the SR 1 corridor into the US 113 corridor, were also depicted. Finally, two corridors in the eastern part of the county, which utilize the Corridor Capacity Preservation Plan for SR 1 to varying degrees before working their way west to tie back to the US 113 corridor, were illustrated.

US 13 has historically carried more traffic than US 113 and is more congested. On US 13, candidate corridors (13-B and 13-C) were developed to bypass Greenwood, Bridgeville, Seaford, and Laurel. US 13 has a substantial number of highway-dependent businesses and there would be substantial impacts to these businesses associated with a new alignment. Therefore, an upgrade corridor (13-A) was also examined. As a result of many concerns about congestion and access restrictions, Secretary Hayward has taken a keen interest in enhancing traffic flow and providing access to businesses in this area. The corridor capacity preservation plan on US 13 has gained the support of the municipalities along the route and serves as a reasonable, community-supported long-term solution to mobility and safety issues in the corridor.

US 113 serves some of the same transportation needs as US 13, including through traffic and connections between Sussex County towns. In addition, it serves as a major corridor for seasonal traffic. Projected 2020 levels of service along US 113 range from B (good) to F (unacceptable). The team considered several potential corridors both east and

west of the existing highway, including one (113-E) which would be closer to the beach in the vicinity of SR 5 and SR 30. Although this corridor would benefit seasonal traffic, it could negatively affect the economy of the towns and would encourage growth in areas where it is not currently planned. Therefore, the working group decided that a new highway corridor should be closer to existing US 113 to benefit the towns and the County.

Refinement of Candidate Corridors

The brainstorming session resulted in eight candidate corridors, roughly paralleling both US 13 and US 113. Even at a basic feasibility stage, it is necessary to develop a more reasonable range of alternatives to be carried forward for further study. Therefore, the team worked to narrow this range with the assistance of the working group.

The first step in this effort was to determine whether US 13 or US 113 should be the focus of further study work. As discussed, the current plan to balance mobility and safety on US 13 with sound economic development has developed a broad base of support with the County and municipalities. Furthermore, Maryland's funding efforts are focused on converting US 113 to limited access as far north as Selbyville. Finally, completion of limited-access SR 1 as far south as Dover Air Force Base and adoption of the SR 1 corridor capacity preservation plan have established the Dover-to-Milford corridor as the north-south route of choice in southern Kent County. In light of these facts, the working group decided to focus on the US 113 corridor.



Southbound US 113 south of Milford.

Because any proposed north-south facility is to be limited access to serve regional traffic, it would be logical to tie the south end of the facility to Maryland's efforts at converting its portion of the US 113 corridor to limited access. Similarly, with DelDOT's emphasis on converting existing SR 1 to limited access from Dover to Nassau, the north end of the proposed facility should tie into the SR 1 corridor near Milford. For purposes of future analysis and environmental documentation, the above locations appear to serve as "logical termini," endpoints that are logical and provide defensible arguments for their choice.

CLICK HERE
TO OPEN FIGURE 1

The study effort then turned to candidate corridors in the vicinity of US 113. The working group used three primary criteria to gauge these corridors: ability to serve regional as well as seasonal traffic, potential to be built in usable and affordable segments, and minimization of potential environmental impacts. Each of the alternative corridors is likely to serve regional and seasonal traffic; however, the other two criteria were beneficial in narrowing the range of potential corridors.

Corridors 113-D and 113-E were initially developed to provide better access between northern Delaware and the Rehoboth Beach/Long Neck area. However, these corridors are far from major arterial routes, so they would have to be built on new location almost in their entirety to achieve any potential benefit. Because this violates the criterion that a route be built in usable segments, and because substantial agricultural land would be taken, these two corridors were dropped from further consideration.

North of Georgetown, significant freshwater wetlands are found within and adjacent to Redden State Forest. This situation limited the initial corridors in this area, near Ellendale, to the existing US 113 alignment. Any proposed western bypass of Georgetown (113-B) would encounter similar wetland impacts. Further, this corridor would require traffic destined for Delaware beaches to continue to pass through Georgetown, Millsboro, and Dagsboro. For these reasons, corridor 113-B was also eliminated.



US 113 through Redden State Forest.

The existing US 113 connection to SR 1 passes through a rapidly-developing highway commercial area in the City of Milford. Therefore, options were considered to link a new limited-access US 113 corridor with the SR 1 corridor capacity preservation plan. Because a number of ponds and residential communities are found west of US 113 in the Milford

area, the only apparent feasible connection is to the east and south. A facility in this area could serve as an extension of the existing Milford Bypass, passing south of Milford and Lincoln to join the US 113 corridor.

When this analysis was completed, two general corridors remained. The first, 113-A, includes the conversion of US 113 into a limited-access facility, generally along its existing alignment, combined with a southern bypass of Milford. The commercial and residential development along US 113 is limited and contains undevelopable wetlands along major stretches of the highway. In addition, it has the advantage of having wide medians and large setbacks for buildings in other areas. When overpasses and service roads are properly designed, existing businesses and residences can be accommodated without major disruption.

The second corridor, 113-C, would include a similar alignment from north of Milford to north of Georgetown, but would then proceed south, bypassing Georgetown to the east. Further south, the corridor would also bypass Millsboro, Dagsboro, and Frankford, although either a western or eastern bypass in this area may be feasible. Any new alignment in corridor 113-C would be located as close to existing US 113 as current development allows. A corridor east of US 113 would provide better beach access while relieving local traffic along the existing highway. By maintaining the corridor close to the towns, it can be built in segments and travelers would be more likely to patronize existing businesses.

In addition, along with a review of north-south needs, east-west connections were considered. The major east-west routes in the US 113 area are SR 404, SR 18, and US 9; SR 24; SR 26; and SR 54. These routes currently pass through the most densely-developed portions of Georgetown, Millsboro, Dagsboro, and Selbyville respectively. For either of the north-south corridors to work efficiently, connections to these routes, by way of bypasses around the towns through which they are currently routed, need to be developed. At the same time, to minimize the economic impact on those communities, these connections need to be carefully planned and constructed in their own right. In addition, zoning around the ends of these routes needs to be controlled by the appropriate authority, either the County or the appropriate town, to support the existing development in the towns and not force the movement of existing or future development from the towns to these east-west connections.

Table 1 illustrates the relative benefits, costs, and impacts of the two most desirable corridors, which are illustrated in Figure 2.

Corridors Recommended for Further Study

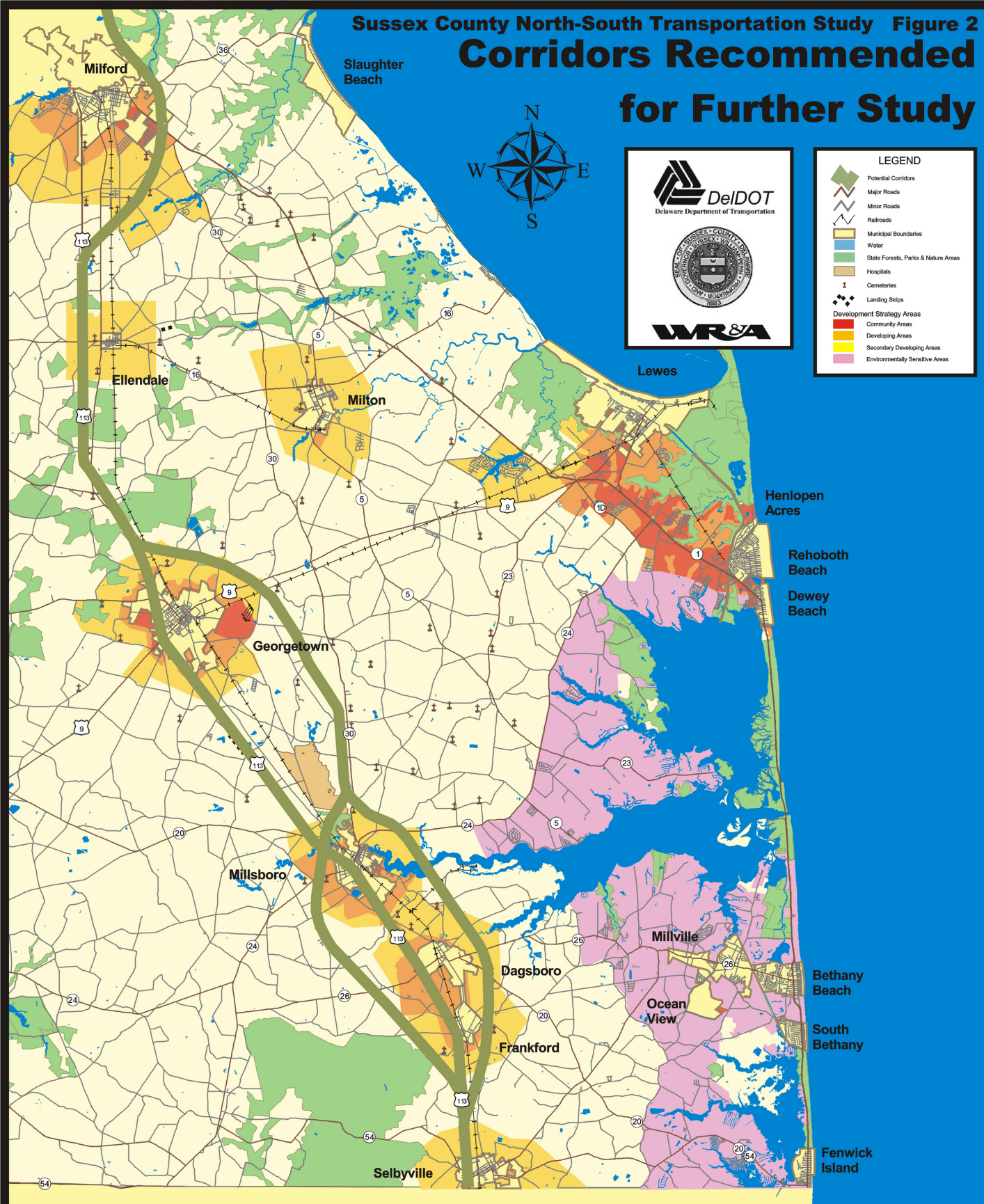


Table 1. Comparison of Corridors Recommended for Further Study.

| Issue | CORRIDOR | |
|----------------------|------------------------------------|-----------------------|
| | 113-A (upgrade existing alignment) | 113-C (new alignment) |
| Total length | 32 miles | 34 miles (approx.) |
| Agricultural impacts | Minimal | Significant |
| Wetlands impacts | Minimal | Moderate |
| Cost | \$400 to 500 million | \$650 to 750 million |
| Time to implement | 5 to 15 years | 15 to 20 years |

Recommendations

This study recommends that the Department proceed with the following actions.

- Change the Corridor Capacity Preservation Program for US 113 into its own project, with an emphasis on converting the existing alignment into a limited-access facility.
- Begin planning of a Milford bypass extension to preserve the needed right of way.
- Initiate discussions with the towns along US 113 to plan for improved connections to major east-west roadways, as well as the conversion of the existing alignment to limited access.
- Work with the County to better use existing ordinances to develop a policy to control access to

US 113 and limit the number of additional traffic signals.

These actions should address the adequacy of north-south capacity in Sussex County for the foreseeable future. Should the study of the conversion of existing US 113 to limited access determine the need to look at alternate corridors because of economic impacts between Georgetown and the Delaware state line, the following corridors should be considered.

- Corridor 113-C, with an eastern bypass of Millsboro, Dagsboro, and Frankford
- Corridor 113-C, with a western bypass of Millsboro, Dagsboro, and Frankford

CONCLUSION

The purpose of this feasibility study was to determine whether potential north-south routes exist through Sussex County given engineering and environmental constraints. This study concludes that a major north-south transportation facility in the vicinity of US 113 is feasible from an engineering standpoint. Other key study results include a range of alternatives for further study, order-of-magnitude cost estimates for those alternatives, and potential impacts to the built and natural environment. Because a feasibility study serves only as the first step in the extensive planning process required for implementation of a new transportation facility, this report does not address issues such as economic justification, cultural resource impacts, project need, or a preferred alternative, which are typically addressed later in the process.

The working group acknowledged the relative benefits of the upgrade alternative, corridor 113-A, in terms of cost, timing for implementation, and environmental impact. These recommendations also support Governor Minner's Livable Delaware initiative and the Department of Transportation's Long Range Transportation Plan. A presentation of the study was made to the Sussex County Association of Towns on June 8, 2001 and to Sussex County Council on June 12, 2001. Both groups provided support for the recommendations and expressed enthusiasm for expediting the planning process. As such, the Sussex County North-South Transportation Study represents an opportunity for the Delaware Department of Transportation, Sussex County, and Sussex County's municipalities to work together in meeting transportation needs. This project represents a unique opportunity to plan for the future of transportation in Sussex County.

